

CASE NO.: 50R4781
Serial No.: 09/932,127
May 22, 2005
Page 2

PATENT
Filed: August 16, 2001

1. (currently amended) A method for concealing errors in texture partition of a video packet, comprising:
 - determining a particular macroblock within the texture partition where error is detected;
 - concealing the error starting at the particular macroblock;
 - evaluating image smoothness of concealed macroblocks ~~at least in part by summing squares of pixel value differences that weighs pixel value mismatches between macroblocks belonging to different video data structures differently~~;
 - repeating said concealing and evaluating with one more macroblock added prior to the previous particular macroblock such that the concealing and evaluating is done on the combination of the one more macroblock and the previous particular macroblock, said repeating done by successively adding one more macroblock to the combination until all macroblocks in the texture partition have been concealed; and
 - selecting a set of macroblocks, including a combination of decoded and concealed macroblocks, that produces best image smoothness.

2. (original) The method of claim 1, further comprising:

storing all decoded macroblocks of texture data in the texture partition up to the particular macroblock.

3. (currently amended) The method of claim 1, wherein said concealing the error starting at the particular macroblock includes performing motion compensated temporal replacements of macroblocks starting at the particular macroblock.

1368-121.AM3

CASE NO.: 50R4781
Serial No.: 09/932,127
May 22, 2005
Page 3

PATENT
Filed: August 16, 2001

4. (currently amended) The method of claim 3, wherein said performing motion compensated temporal replacements is done for those macroblocks whose motion vectors have changed.
5. (currently amended) The method of claim 1, wherein said evaluating image smoothness of concealed macroblocks includes computing smoothness of macroblock boundaries.
6. (original) The method of claim 5, wherein said smoothness of macroblock boundaries is measured by summing pixel value mismatches between macroblock boundary pixels.
7. (original) The method of claim 6, wherein said summing pixel value mismatches includes storing partial mismatch values.
8. (original) The method of claim 6, wherein said summing pixel value mismatches includes summing squares of the pixel value differences.
9. (currently amended) A method for concealing errors in texture partition of a video packet, comprising:
 - determining a particular macroblock within the texture partition where error is detected;
 - concealing the error starting at the particular macroblock;
 - evaluating image smoothness of concealed macroblocks;

1168-121.4M3

CASE NO.: 50R4781
Serial No.: 09/932,127
May 22, 2005
Page 4

PATENT
Filed: August 16, 2001

repeating said concealing and evaluating with one more macroblock added prior to the previous particular macroblock, said repeating done until all macroblocks in the texture partition have been concealed; and

selecting a set of macroblocks, including a combination of decoded and concealed macroblocks, that produces best image smoothness, wherein ~~said evaluating image smoothness includes summing squares of the pixel value differences that weighs the pixel value mismatches between macroblocks belonging to different video packets are weighed differently from each other. differences in weighing depending on differences in desired quality of video frames.~~

10. (currently amended) The method of claim 9, wherein the pixel value mismatches between macroblocks that belong to different video packets ~~may be~~ are configured to weigh more than the pixel value mismatches between macroblocks that belong to same video packets.

11. (original) The method of claim 6, wherein said pixel value mismatches are computed by reusing the partial mismatch values from previous iteration.

12. (original) The method of claim 1, further comprising:

detecting the error in the video packet.

13. (original) The method of claim 12, wherein said detecting includes detecting invalid variable length code.

1168-121.AM3

CASE NO.: 50R4781
Serial No.: 09/932,127
May 22, 2005
Page 5

PATENT
Filed: August 16, 2001

14. (original) The method of claim 12, wherein said detecting includes detecting inconsistent resynchronization header information.
15. (original) The method of claim 12, wherein said detecting includes detecting receipt of out-of-range motion vectors.
16. (previously presented) The method of claim 2, wherein said detecting includes DCT coefficient counts greater than a predetermined amount of approximately 64 pixels for a macroblock and Y/Cr/Cb pixel values out of range.
17. (currently amended) The method of claim 2, wherein said selecting a set of macroblocks includes recovering some of the stored decoded macroblocks.
18. (original) The method of claim 17, wherein said some of the stored decoded macroblocks include decoded macroblocks up to a macroblock that produced the best image smoothness.
19. (currently amended) A method for concealing errors in texture partition of a video packet, comprising:
 - determining a particular location within the texture partition where error is detected;
 - concealing the error in texture data starting at the particular location;
 - evaluating image smoothness of the concealed texture data at least in part by weighing assigning first weights to pixel value mismatches between macroblocks belonging to different in a first video data structures

1168-121.AM3

CASE NO.: 50R4781
Serial No.: 09/932,127
May 22, 2005
Page 6

PATENT
Filed: August 16, 2001

differently and assigning second weights to pixel value mismatches between macroblocks in a second video data structure, the first and second weights not being identical to each other and each being established based at least in part on a respective desired quality of video decoded from the respective video data structure;

repeating said concealing and evaluating with one more texture data unit added prior to the previous particular location, said repeating done until all texture data units in the texture partition have been concealed; and

selecting a set of texture data units, including a combination of decoded and concealed texture data units, that produces best image smoothness.

20. (original) The method of claim 19, wherein said concealing the error in the texture data starting at the particular location includes performing motion compensated temporal replacements of texture data units starting at the particular location.

21. (currently amended) An error concealment system for texture partition of a video packet, comprising:
an error location detector to receive video packets, and determine a particular macroblock within the texture partition where error is detected;
an error concealment element to conceal the error starting at the particular macroblock;
an image smoothness evaluator to evaluate the concealed macroblocks, the evaluator at least in part summing squares of element value differences in a manner that weighs element value mismatches between macroblocks belonging to different video packets differently based at least in part on different desired qualities of video;

1168-121.ANS

CASE NO.: 50R4781
Serial No.: 09/932,127
May 22, 2005
Page 7

PATENT
Filed: August 16, 2001

a selector to select a set of macroblocks, including a combination of decoded and concealed macroblocks, that produces best image smoothness.

22. (original) The system of claim 21, wherein said error concealment element includes a motion compensated temporal replacement element.

23. (original) The system of claim 21, further comprising:

a storage element to store all decoded macroblocks of texture data in the texture partition up to the particular macroblock.

24. (currently amended) A computer readable medium containing executable instructions which, when executed in a processing system, causes the system to conceal errors in texture partition of a video packet, comprising:

determining a particular macroblock within the texture partition where error is detected;
concealing the error starting at the particular macroblock;
evaluating image smoothness of concealed macroblocks;
repeating said concealing and evaluating with one more macroblock added prior to the previous particular macroblock, the concealing and evaluating being done on the combination of the one more macroblock and the previous particular macroblock, said repeating done by successively adding one more macroblock to the combination until all macroblocks in the texture partition have been concealed; and

1168-121.AM3

CASE NO.: 50R4781
Serial No.: 09/932,127
May 22, 2005
Page 8

PATENT
Filed: August 16, 2001

selecting a set of macroblocks, including a combination of decoded and concealed macroblocks, that produces best image smoothness, wherein the evaluating instruction includes summing squares of pixel value differences that weighs the pixel value mismatches between macroblocks belonging to different video packets differently.

25. (original) The computer medium of claim 24, further comprising:

storing all decoded macroblocks of texture data in the texture partition up to the particular macroblock.

26. (canceled).

27. (new) The computer medium of Claim 24, wherein the evaluating instruction includes summing squares of pixel value differences that weighs the pixel value mismatches between macroblocks belonging to different video packets differently.

1368-121.AM3